

PIPJ JOINT ARTHROPLASTY WITH PYROCARBON IMPLANTS

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The pyrocarbon implants are two articulating implants without an interposed polyethylene surface. This type of device is much like the new ceramic implants available for total hip replacement wherein one highly polished surface articulates with another without intervening material. The older Swanson style implants were simply silastic spacers that kept the two joint surfaces from contacting one another. Their motion came due to repeated flexing of the silastic material. Eventually, these devices fracture and sometimes require replacement. There are advantages of the Swanson style implant, however. They provide a small extension movement due to their inherent elastic recoil to the extended position. They also resist dislocation by virtue of their constrained nature (the single piece implant projects far down into the medullary canal of each bone). In many cases of rheumatoid hand surgery, the silastic implants may still be preferable.

The significant advantage of the pyrocarbon devices is their long wear characteristics and the fact that they replace the joint with a geometry much like what was removed making high demand activities possible after the recovery phase. Dislocation and extensor lag are very real problems and require a high degree of monitoring during the rehab phase. Every patient is different and each will require a slightly different approach.

IMMEDIATE POST OP PERIOD, DOS: _____

Pt. will be in a resting splint with adequate dressing to absorb bleeding and to apply compression to minimize swelling. Pts. are encouraged to elevate the hand in foam pad or equivalent

WEEK 1: Unwrap hand. Assess vascularity, sensibility and condition of wounds. Notify MD if any evidence of infection or dehiscence. Check for significant extensor lag (+ 25 degrees).

- If significant lag, place finger in full time PIPJ extension, MCPs at 40 degrees flexion, for first 3 weeks. DIP should be left with free AROM, and patient is encouraged to move that joint into flexion to allow lateral band distal slide without stressing the central slip.
- If any hyperextension exists (very rare), place finger in extension blocking splint, MCPs at 20 degrees flexion, PIP at 30 degrees flexion, DIP left with full ROM. Fix in this position for the first week; then, allow 10 deg. arc of motion (30-40) the second, up to 60 deg. arc the 3rd week (30-90). After that, proceed as below with dynamic extension splint.

If no significant lag, proceed with the following course:

FIRST SPLINTS: 1) DAY: Dynamic extension splint with 0-30 degree PIP motion
2) NIGHT: Resting splint with MCPs at 20 degree, PIP/DIP full extension.

WEEK 2, Begin Date: _____

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Modify flexion block to 40 degree. If after 2-3 days, patient has not reached 45 deg. flexion, yet has NOT developed an ext. lag, allow them to exercise without the dynamic ext. assist band.

WEEK 3, Begin Date:_____

Modify flexion block to 60 degrees.

WEEK 4, Begin Date:_____

Remove flexion block. Maximize PIP flexion. Start AAROM. Remove dynamic ext. assist if pt. able to maintain PIPJ extension on their own. Use buddy tape to adjacent digits PRN to assist with motion and alignment.

WEEK 6, Begin Date:_____

Advance to light functional activities. PIPJ flexion goal is 0-75 degrees AROM. May achieve more as long as extension is not compromised.

WEEK8, Begin Date:_____

Discontinue night splinting. Teach HEP for strengthening. Provide 2 densities Theraputty.

WEEK 12, Begin Date:_____

Patient to discontinue night splinting.